



OKLAHOMA TURNPIKE AUTHORITY

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GOVERNOR DAVID WALTERS
Member Ex-Officio

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Member

July 15, 1992

Ms. Donna R. Searcy
Secretary
Federal Communications Commission
Washington, D. C. 20554

Re: RM No. 8013

Dear Ms. Searcy:

I am writing on behalf of the Oklahoma Turnpike Authority to oppose the rule-making petition (RM No. 8013) filed by PacTel Teletrac with the Federal Communications Commission. We understand that this petition relates to the rules pertaining to automatic vehicle monitoring (AVM) systems.

The Oklahoma Turnpike Authority is an instrumentality of the State of Oklahoma that operates over 563 miles of toll roads in the State of Oklahoma. The Oklahoma Turnpike System includes approximately 261 miles of turnpikes designated as interstate highways serving from northeast Oklahoma near the Kansas-Missouri State lines to southwest Oklahoma near the Texas State line. The remainder of turnpikes are designated as U.S. highways and/or serve as urban highways in the Oklahoma City and Tulsa metropolitan areas.

We understand the effect of this petition is to grant to PacTel and similar users exclusive use of the 904-912 MHz and 918-926 MHz bands. We are opposed to this because it would deny us the electronic toll collection operations and for planned future applications of AVM equipment in Oklahoma.

We began using the AVM equipment (which we market under the name of "PIKEPASS") in January of 1991 as our primary means of collecting tolls. As you can see from the following information, the electronic toll collection is a vital part of our daily operations:

- 130,000 transponder tags have been issued to date and it is anticipated that 250,000 will be reached by 12/31/92;

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- 219 toll lanes on 10 turnpikes are equipped with the AVM equipment;
- Approximately 20,000,000 toll transactions are expected to be electronically recorded in 1992.

We experience steady increases in these numbers over time and anticipate substantial future growth of AVM use and possible additions to the system from time to time. For your information, plans are underway to install AVM equipment at the Oklahoma City and Tulsa airports also. Moreover, some of our neighboring states, such as New Mexico, have implemented AVM equipment at the "weigh station" ports of entry into their state.

The Oklahoma toll collection system differs from the typical toll collection system in that "barriers" are not used in Oklahoma. The Oklahoma system is completely open in the sense that it is not necessary for patrons that use the AVM equipment to stop (or even slow) their vehicles and pay tolls at a barrier plaza. Tolls are electronically collected using readers installed on aerial structures. This enables the toll patrons to continue to drive at highway speeds. Those customers that desire to pay the toll with cash are required to exit the turnpike.

The use of this AVM technology has produced many benefits to us and our customers. We have been able to increase the number of toll roads from six to ten without increasing our staff and have achieved a 50% reduction in operating costs. This reduction in expenses has been passed along to the toll customers that use the AVM system in the form of a reduction in the toll prices. Moreover, our customers like the AVM technology because their tolls can be collected without delaying their drive. For your information, major trucking concerns like Wal-Mart Stores, J.B. Hunt, Yellow Freight Systems, Roadway Express, and others have tagged all or a substantial portion of their trucking fleet with PIKEPASS compatible tags. Because of the convenience of using the PIKEPASS and the reduced cost, approximately 30% of all tolls collected on the Oklahoma toll roads are collected through AVM.

Our AVM system operates in the 902-928 MHz frequencies and requires use of nearly all of the channels available in these bands because we presently have up to 6 lanes of traffic simultaneously passing through the AVM monitoring stations and because readers in adjacent lanes require 2 MHz separation to avoid cross interference.


As noted above, PacTel is requesting exclusive use of a large portion of the 902-928 MHz spectrum. We believe that the Commission should continue to allow the shared use of this spectrum, as it has historically done for approximately 20 years, so that we and other beneficial users of this portion of the spectrum may continue to enjoy the benefits of this resource. We believe an exclusive grant to PacTel to be particularly

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inappropriate, since as we understand it, PacTel has fewer than 5,000 subscribers nationwide. This is less than 4% of our current customer base.

We urge the Commission to preserve the amount of the 902-928 MHz spectrum that is currently available for use in AVM applications in Oklahoma and across the country.

Yours very truly,

A handwritten signature in black ink, appearing to read "Richard L. Ridings". The signature is fluid and cursive, with the first name "Richard" being more prominent.

Richard L. Ridings
Chief Executive Officer

RLR:mjm

ATTACHMENT C

**TEXAS TURNPIKE
AUTHORITY**



July 17, 1992

3015 Raleigh Street • P.O. Box 190369
Dallas, Texas 75219
Phone 214/522-6200
Fax 214/528-4826

Ms. Donna R. Searcy
Secretary
Federal Communications Commission
Washington, D.C. 20554

RE: RM No. 8013

Dear Ms. Searcy:

I am writing to express opposition on behalf of the Texas Turnpike Authority (the "Authority") to the referenced rule making petition of Pacific Telesis Teletrac to substantially revise the rules in Part 90.239 governing automatic vehicle monitoring (AVM) systems.

The Authority is an agency of the State of Texas which owns and operates toll highways and bridges. Our largest and busiest facility is the Dallas North Tollway, a 20+ mile long highway which serves as a major commuting corridor for the Dallas metropolitan area from the far northern suburbs of Dallas to the central business district.

Since 1989 the Authority has used AVM technology supplied by Amtech Corporation for non-stop, cashless, electronic revenue collection at all of our 63 separate toll collection lanes on the Dallas North Tollway. This program has been a resounding success, both for our agency and for our patrons, as can be noted from the following:

Nearly 50,000 vehicles are equipped with TollTag transponder devices in the greater Dallas metropolitan area.

Over 20,000,000 toll transactions are collected electronically annually through the use of the AVM system.

The majority of peak hour commuter traffic on the Dallas North Tollway makes use of the AVM system, enabling the highway to handle ever-increasing traffic counts while simultaneously reducing traffic congestion, revenue collection costs, overall vehicle emissions, etc.

The AVM system has been the subject of a recognition award for innovation by the Federal Highway Administration in 1990.

MEMBERS: LUTHER G. JONES, JR., CHAIRMAN, CORPUS CHRISTI • CHARLES R. MATTHEWS, VICE CHAIRMAN, GARLAND
RAY C. STOKER, JR., ODESSA • MICHAEL Y. CHOU, HOUSTON • HENRY R. MUNOZ, III, SAN ANTONIO • JAMES N. MUNS, PLANO
CLIVE RUNNELLS, HOUSTON • DAVID E. BERNSEN, BEAUMONT • JERE W. THOMPSON, JR., DALLAS • WILLIAM P. MAHOMES, JR., DALLAS
RAUL A. BESTEIRO, JR., BROWNSVILLE • PHILIP MONTGOMERY, DALLAS • JOHN B. RAMMING, EXECUTIVE DIRECTOR • HARRY KABLER, SECRETARY-TREASURER

AN AGENCY OF THE STATE OF TEXAS

Donna R. Searcy
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We understand that the PacTel petition, if allowed, would grant exclusive use of large portions of the 902 - 928 MHz spectrum to PacTel for its infant Teletrac service. We oppose exclusive allocation of this spectrum to any one user or service and believe strongly that the public interest would dictate that the Commission should retain use of this spectrum on a shared basis as it has been successfully utilized by hundreds if not thousands of users in the past.

It is important to note that implementing AVM equipment for electronic toll collection will in many instances require use of large numbers of tag readers in close proximity. This, in turn, requires the system readers to operate with approximately 2 MHz channel separation to avoid cross interference.

In our case, we utilize barrier collection plazas of up to 16 such adjacent lanes, and it is essential to maintain lane discrimination of individual vehicles both for auditability and enforcement purposes. Moreover, such multiple readers are desirable in the sense that in the event of a reader failure for any reason, we wish to minimize the potential for "single points of failure" forcing closure of more than one or two lanes at any time.

We note that Teletrac has, as we understand it, fewer than 5,000 users nationwide. It would seem to us that it is a poor allocation of scarce radio spectrum to dedicate exclusively large portions of it to such a service, particularly when our agency and a number of others in several states already have over 300,000 users of AVM equipment today for electronic toll collection. Instead, services such as Teletrac should be required in the public interest to be designed to be sufficiently robust to allow for shared spectrum usage, as is our AVM equipment.

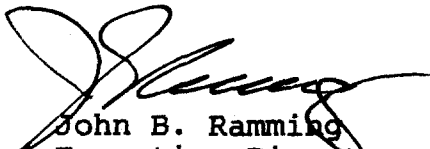
We also draw your attention to the fact that in addition to the steadily increasing use of the existing system by the Authority and its patrons, construction is underway on a further northern extension of the Dallas North Tollway, which will require us to equip an additional 21 lanes with AVM equipment within the next two years. Thus, grandfathering existing licenses is not adequate to serve our needs.

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Finally, it should be noted that Congress articulated a strong federal policy in favor of dramatically increased and widespread use of technologies such as our AVM system in the new Intermodal Surface Transportation Act and the related Intelligent Vehicle Highway Systems Act of 1991. We urge the Commission to respect this federal policy mandate by ensuring availability of at least the same amount of spectrum to AVM systems such as ours in the 902 - 928 MHz band as has been historically available in the Commission's past application and administration of the Part 90.239 rules.

Thank you for your consideration of our comments.

Sincerely,



John B. Ramming
Executive Director

JBR/jw

ATTACHMENT D

**STATE OF LOUSIANA, DEPARTMENT
OF TRANSPORTATION AND
DEVELOPMENT**



EDWIN W. EDWARDS
GOVERNOR

STATE OF LOUISIANA
DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
CRESCENT CITY CONNECTION DIVISION
Post Office Box 6297, New Orleans, Louisiana 70174-6297



JUDE W. P. PATIN
SECRETARY

JULY 17, 1992

Ms. Donna R. Searcy
Secretary
Federal Communications Commission
Washington, D.C. 20554

Re: RM No. 8013

Dear Ms. Searcy:

I am writing on behalf of the Louisiana Department of Transportation and Development (LDOTD) in opposition to a petition for rule making recently filed by PacTel Teletrac with the Federal Communications Commission relating to the rules pertaining to automatic vehicle monitoring ("AVM") systems.

The Louisiana Department of Transportation and Development is the agency that operates the Crescent City Connection bridge which utilizes radio frequency technology for electronic toll collection.

We understand that the PacTel petition would have the effect of granting exclusive future use of the 904-912 MHz and the 918-926 MHz spectrum to PacTel and similar users. This would deny us the use of this spectrum, which we need both for current extensive electronic toll collection operations and for any further expansions of AVM equipment.

Amtech Corporation AVM equipment (consisting of transponder tags, readers, and other AVM equipment) has been in operation at our facility since January 1989. A summary of its use on the Crescent City Connection are as follows:

* 28,000 transponder tags are in use by motorists in the greater New Orleans area for electronic toll collection

All twelve toll lanes on the Crescent City Connection Bridge are equipped with the AVM equipment for non-stop electronic toll collection, including three lanes which are totally dedicated for electronic, non-cash collection.

Ms. Donna R. Searcy
Secretary
Federal Communications Commission
Washington, D.C. 20554

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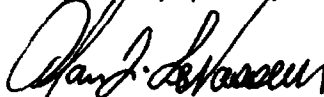
Over 4,031,208 toll transactions are electronically recorded each year.

Motorists enjoy interagency cooperation and are able to use the same transponder to pay tolls on the Lake Pontchartrain Causeway which is operated by the Greater New Orleans Expressway Commission.

LDOTD has been able to achieve operating efficiencies which have allowed us to lower the cost of tolls to motorists using the electronic system by 30%. In addition, this system has reduced traffic congestion and resulting air pollution. We expect participation in the system will increase over time.

The proposed exclusive grant of a large block of frequencies to PacTel will significantly restrict the ability to use multiple readers in facilities such as ours and could thus inhibit both the expansion of these systems and therefore the benefits to motorist and toll authorities alike. We therefore request that the FCC preserve the amount of the 902-928 MHz spectrum that is currently available for use in AVN applications.

Very truly yours,



Alan J. LeVasseur
Executive Director
Crescent City Connection Division



ATTACHMENT E

**AVTECH SYSTEMS
CORPORATION**

Ms. D.R. Searcy
Secretary
Federal Communications Commission
Washington, D.C. 20554

July 15, 1992

Ref: RM No. 8013

Dear Secretary Searcy:

I am President of Avtech Systems Corporation, a California corporation engaged in the sale of remote Radio Frequency Identification (RFID) equipment which includes both hardware and software. The equipment that we utilize operates within the 902-928 Mhz spectrum. It is our understanding that a PacTel subsidiary has recently filed a "petition for rule making" with the Federal Communications Commission that would severely restrict the future use of certain broad portions of the 902-928 Mhz. band. We believe that this petition is not in the public interest and wish to oppose this petition for the reasons listed herein.

The system that we sell is comprised of a uniquely programmed computer chip encased in a small plastic "tag" that is attached to vehicles. As these "tags" enter areas under radio frequency surveillance, the tag becomes energized and reflects pre-programmed information concerning the identity of the vehicle and its operator back to RF transmitting/receiving device.

Our current customer base includes regional and international airports located along the west coast of the United States. These airports utilize our product to monitor access and assess usage fees for those firms that transport people to and from these airports on a fee basis: e.g. taxis, super-shuttles, hotel courtesy vans, off-premises rental car companies and limousines. Airports that are successfully utilizing these RFID systems include Los Angeles International Airport, Ontario International Airport, Burbank International Airport, Orange County International Airport, Seattle International Airport and Oakland International Airport (RFID system currently under construction).

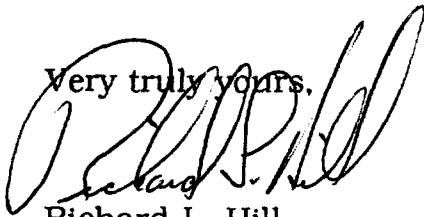
Avtech's future customers would obviously include those other airport facilities (San Diego, Long Beach, San Jose, San Francisco, etc.) that are accessed by the same transportation firms and would be able to cost effectively utilize our product without the cost of installing "tags" on those vehicles all ready tagged. An action by the FCC to restrict future usage of the 902-928 Mhz spectrum by granting broad band authority to individual users would cause irreparable harm to our business.

Additionally, our firm has several active proposals with other enterprises which include RFID access control installations for gated communities, parking facilities and community sports arenas. Our ability to offer RFID applications to this diverse customer community is in part possible by the traditional sharing of the 902-928 Mhz frequency.

Application of the current FCC rules pertaining to automated vehicle monitoring has clearly resulted in the creation of imaginative products that promote America's ingenuity in both domestic and international markets. Granting of exclusive rights to use broad portions of this or any other spectrum of frequency historically set aside for general public would seem to be unnecessarily biased in favor of the petitioner as well as anti-competitive with regard to those current users of the 902-928 Mhz spectrum

We therefore urge the Commission to deny PacTel's petition in favor of continuance with the current rules pertaining to AEI applications.

Very truly yours,

A handwritten signature in black ink, appearing to read "Richard L. Hill", written over the typed name.

Richard L. Hill
President

cc: Walter A. Abernathy

ATTACHMENT F

CANADIAN REGULATION

GL-07 ISSUE 2

TECHNICAL GUIDELINES FOR CERTIFICATION OF
AUTOMATIC VEHICLE MONITORING SYSTEMS IN THE 902-928 MHZ BAND

1. EQUIPMENT REQUIREMENTS

The equipment shall operate in the 902-928 MHz band. The AVM system shall consist of an interrogator unit and a transponder unit. The interrogator unit transmits a R.F. signal that is confined to the 902-928 MHz band. This signal is intended to be received by a transponder unit. The transponder unit receives the interrogator signal and transmits a modulated signal back to the interrogator unit either within the 902-928 MHz band or on a frequency defined as the second harmonic of the interrogator unit nominal operating frequency. The interrogator unit is to be certified in accordance with RSP-100 procedures. This GL-07 only concerns systems with passive transponder units.

2. PERFORMANCE REQUIREMENTS FOR INTERROGATOR UNIT

2.1 Transmitter Power Output

Definition: The transmitter power output is the R.F. power dissipated in the standard output termination under standard test conditions.

Minimum Performance Standard: Shall not exceed 10 watts.

2.2 Occupied Bandwidth

Definition: The width of the frequency band outside of which any frequency component will have a power at least 26 dB below the unmodulated carrier or the average power of a given emission, as appropriate.

Minimum Performance Standard: The Occupied Bandwidth of the emission shall not exceed 8 MHz.

2.3 Spurious Emissions

Definition: Spurious Emissions are emissions at any frequency outside the band necessary to ensure the adequate transmission of information. Spurious emissions include harmonic emissions, parasitic emissions and intermodulation products which are in the immediate vicinity of the pass band.

Minimum Performance Standard: Any spurious frequency outside the band 902-928 MHz except harmonics of the carrier, shall be attenuated at least 40 dB below the unmodulated carrier and also shall not exceed 50 uW. Harmonic emissions up to the 5th harmonic of the carrier or the 5th harmonic of local oscillator frequencies shall be attenuated at least 40 dB below the unmodulated carrier and shall not exceed 100 uW.

2.4 Carrier Frequency Stability

No testing is required if it is shown from the manufacturer's data that any frequency drift due to temperatures 60°C to -30°C and supply voltage variation of $\pm 10\%$ will not cause any carrier and modulator product to fall out of the 902-928 MHz band.

2.5 Receiver Spurious Radiation

Definition: Receiver spurious radiation is any radio frequency emission generated within the receiver, which is radiated by the receiver through its case, antenna, associated wires, cables and accessories.

The method of field strength measurement described in RSS 209 may be used as a guide.

2.6 Antenna Conducted Receiver Spurious Emissions

Measure the receiver spurious frequencies and levels which appear at the antenna terminals, using RSS 119 as a guide. Any spurious frequency shall not have a power exceeding 20 nanowatts.

Minimum Performance Standard: The receiver R.F. spurious output shall be less than 500 uV/m measured at 3 meters (to be checked to 5 times the carrier frequency).

2.7 Power Line Conducted Measurement: Not required.

3.0 PASSIVE TRANSPONDER UNIT

A passive transponder is one that does not have its own source of electricity. A passive transponder is permitted to re-transmit in the same band as the incident wave or at twice the incident frequency band.

If a minimum separation distance of 1.5m is assumed between interrogator and transponder, then the transmission loss is 35 dB.

Assuming a transponder to have a conversion loss of 20 dB, an interrogator EIRP of 100 watts (20 dBW) will yield a transponder output power of -35 dBW or 333 uW. The second harmonic (1.804 - 1.856 GHz) falls into the FIXED service (SRSP 301.71) line-of-sight systems band. The minimum transmitter output power of these systems is 1 dBW into an antenna of typically 30 or more dB gain, i.e. an EIRP of over 31 dBW. The AVM transponder, having a power of at least 66 dB below that of the FIXED microwave systems, does not represent a source of interference to the latter.

Therefore the transponder is exempted from equipment certification requirements and licensing.

APPENDIX TO GL-07 ISSUE 2

GENERAL REQUIREMENTS FOR LICENSING OF AUTOMATIC VEHICLE MONITORING SYSTEMS IN THE 902-928 MHz BAND

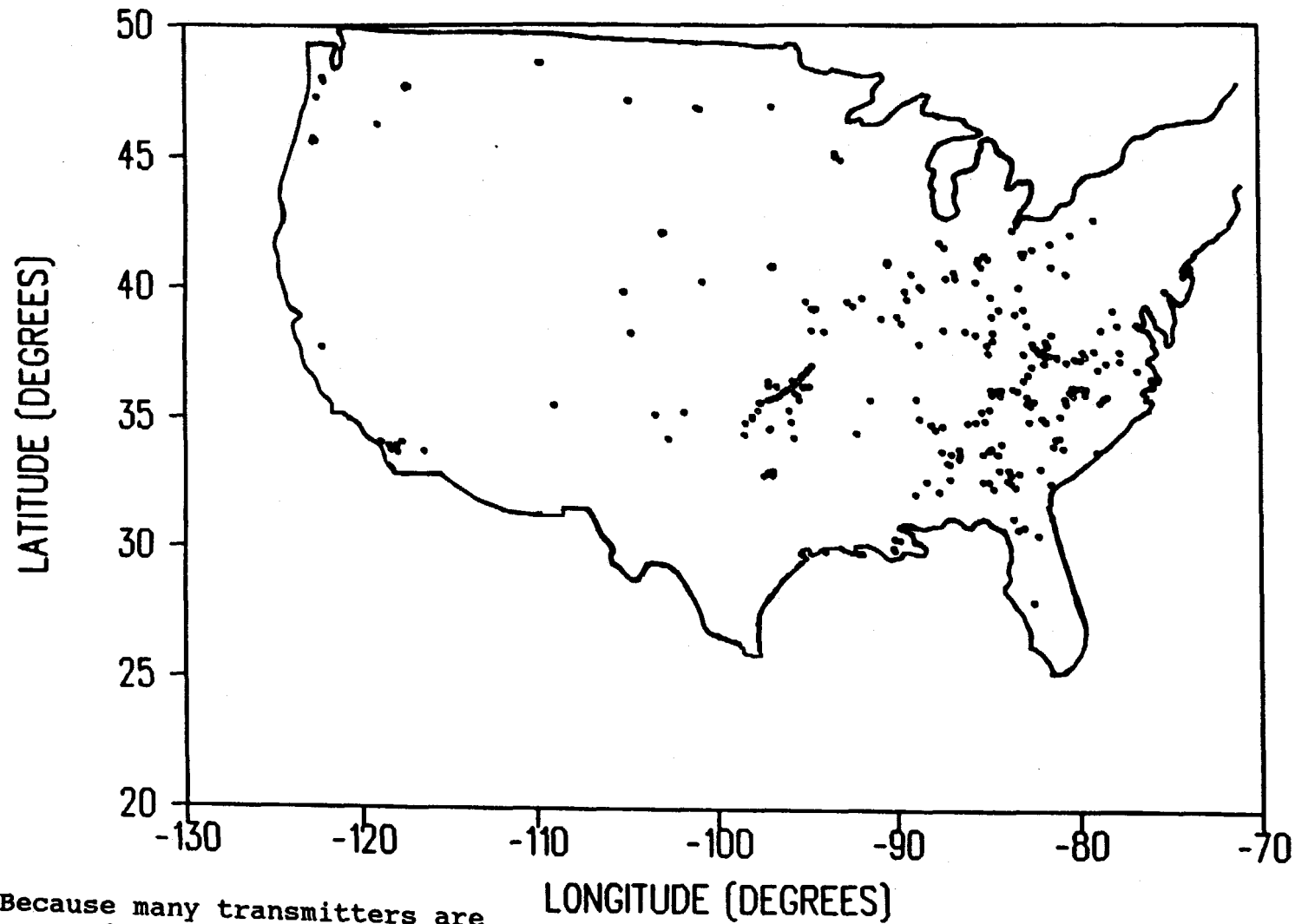
The following guidelines are recommended.

- (1) AVM systems will be licensed on a secondary basis to the primary services in the band in accordance with SP 896.
- (2) AVM systems shall normally be permitted a maximum EIRP of 100 watts (20 dBW). Furthermore, if the minimum separation distance between the interrogator antenna and the transponder is less than 1.5 meters, the permissible EIRP is to be reduced, inversely as the square of the distance.
- (3) In some locations, the use of a proximity sensor to turn on and off the interrogator transmitter may be required.

ATTACHMENT G

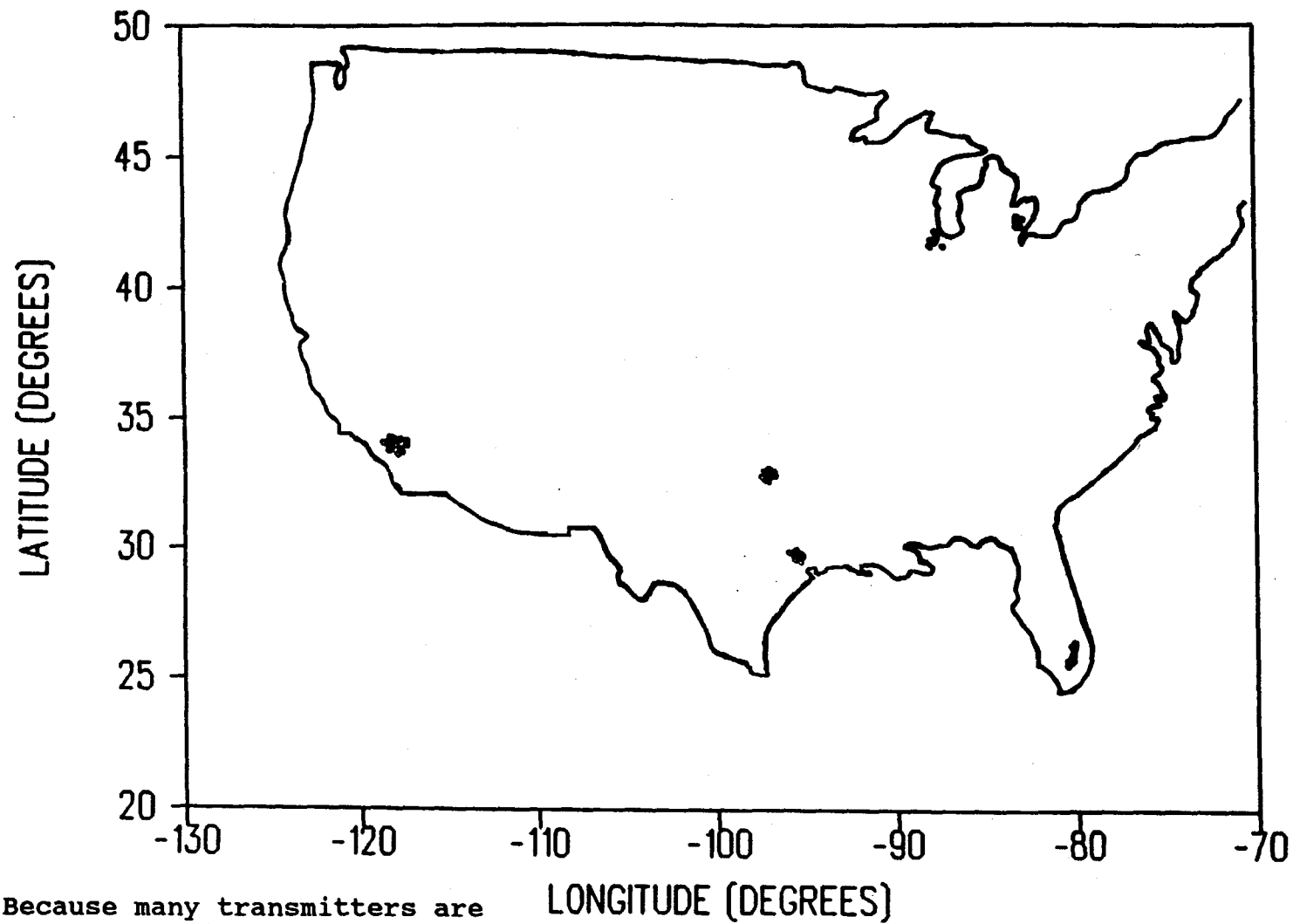
COMPARISON OF AMTECH AND PACTEL INSTALLATIONS

AMTECH INSTALLED LICENSE LOCATIONS AS OF JUNE 1992
CONTINENTAL UNITED STATES - 1309 TRANSMITTERS



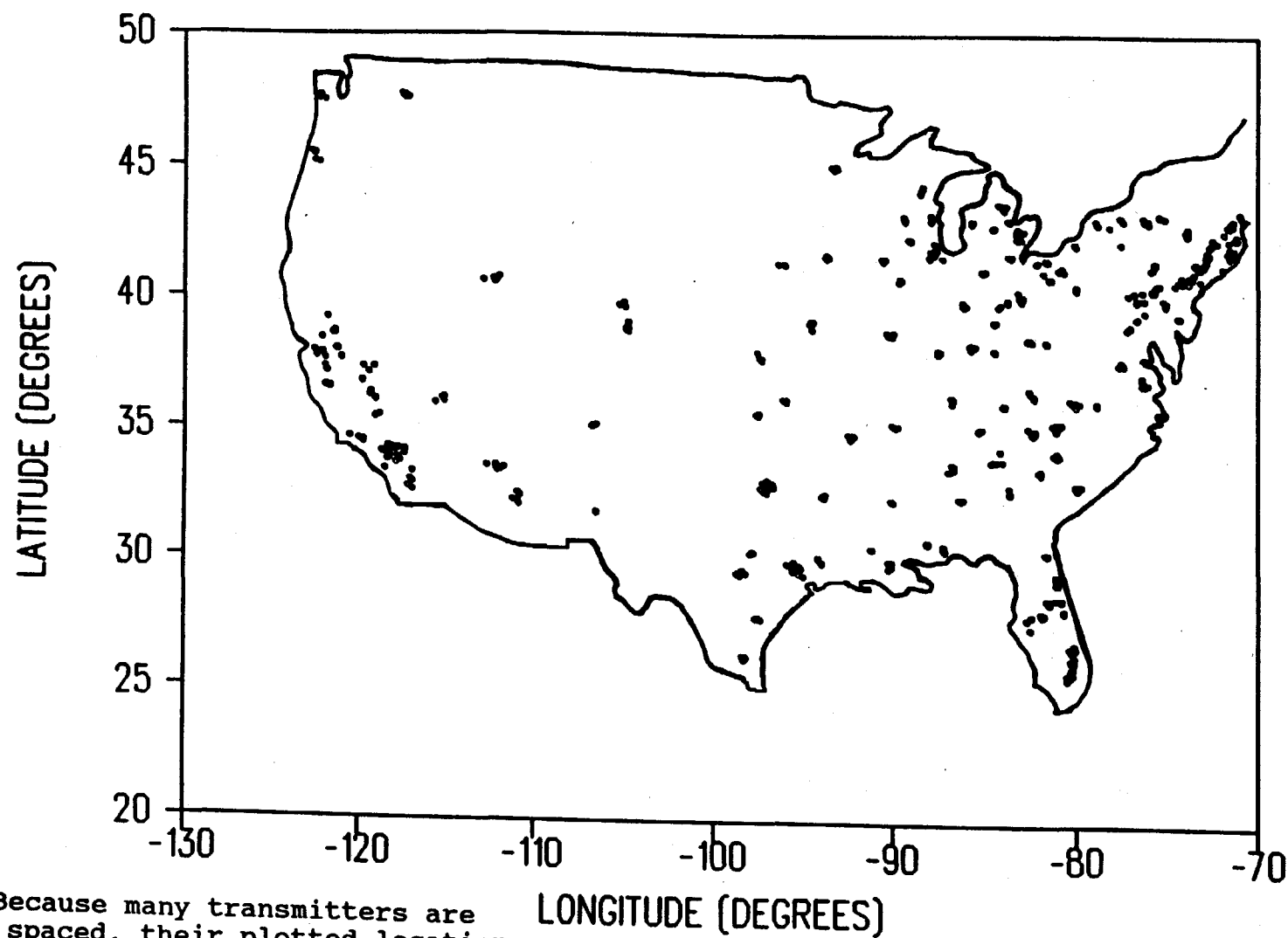
NOTE: Because many transmitters are closely spaced, their plotted locations may overlap on the map.

TELETRAC INSTALLED LOCATIONS AS OF JUNE 1992
CONTINENTAL UNITED STATES - 60 TRANSMITTERS TOTAL



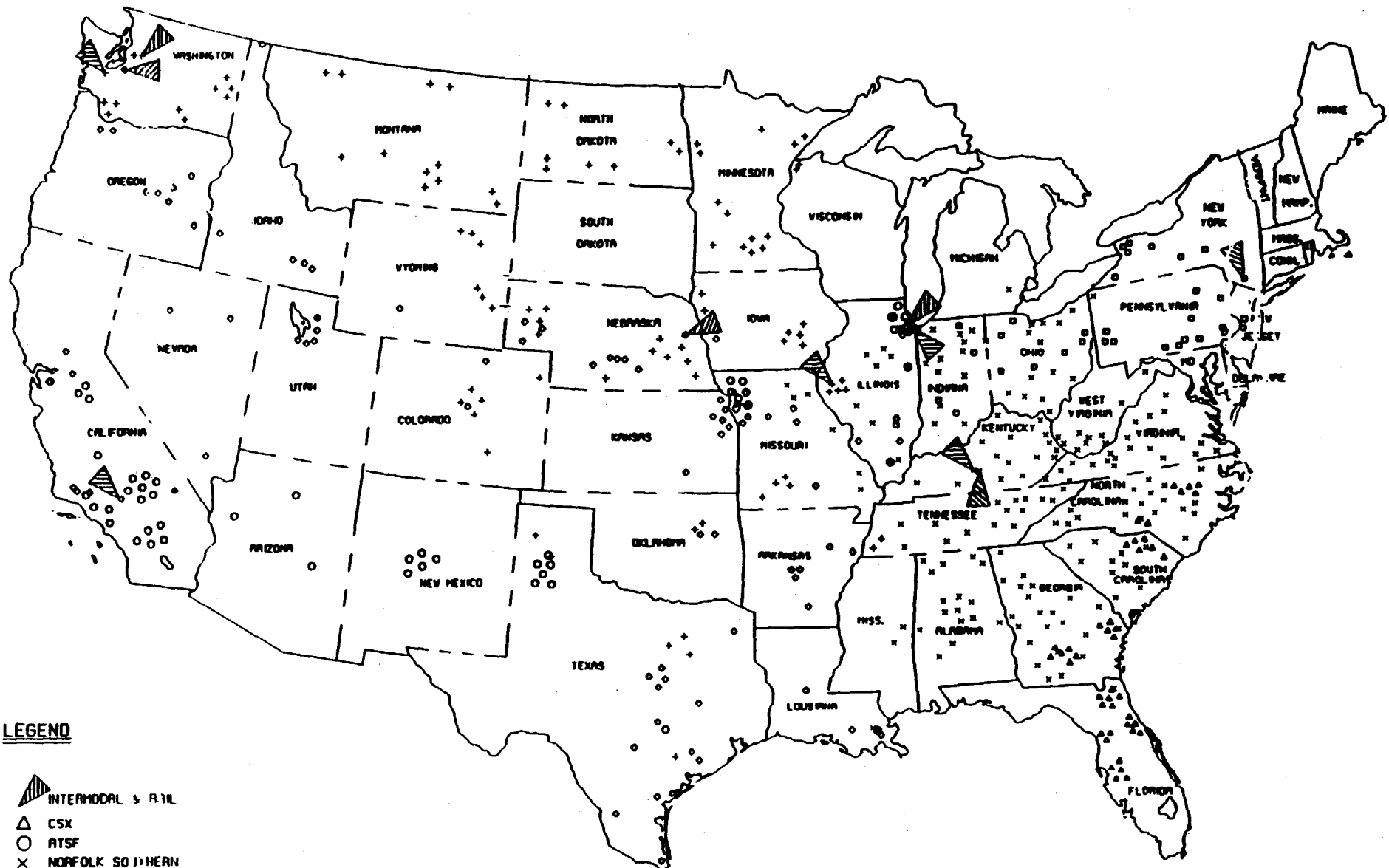
NOTE: Because many transmitters are closely spaced, their plotted locations may overlap on the map.

TELETRAC LICENSE LOCATIONS CONTINENTAL UNITED STATES











NOTE: Because many transmitters are closely spaced, their plotted locations may overlap on the map.

UNITED STATES RAIL AEI INSTALLATIONS 1992 PLANNED AND COMPLETED



LEGEND

-  INTERMODAL & RAIL
-  CSX
-  ATSF
-  NORFOLK SOUTHERN
-  BURLINGTON NORTHERN
-  UNION PACIFIC
-  CONRAIL
-  CNW

NOTE: Because many transmitters are closely spaced, their plotted locations may overlap on the map.

CERTIFICATE OF SERVICE

I hereby certify that on this 23rd day of July, 1992, I caused copies of the foregoing "Opposition To Petition For Rulemaking" to be mailed via first-class postage prepaid mail to the following:

Stanley M. Gorinson
Winthrop, Stimson, Putnam
& Roberts
1133 Connecticut Avenue, N.W.
Suite 1200
Washington, D.C. 20036

John B. Richards
Keller & Heckman
1101 G Street, N.W., Suite 500W
Washington, D.C. 20001


Elizabeth A. Nicholson